MACTEC

April 19, 2006

4088053173 02

Ms. Joan Fleck
California Regional Water Quality Control Board
North Coast Region
5550 Skylane Blvd., Suite A
Santa Rosa, California 95403

Quarterly Groundwater Monitoring and Sampling – Case No. R1-2004-0019
First Quarter 2006
City of Santa Rosa
Parking Garage 9
Santa Rosa, California

Dear Ms. Fleck:

MACTEC Engineering and Consulting, Inc. (MACTEC) is pleased to present the results of quarterly groundwater monitoring and sampling (First Quarter 2006) for the City of Santa Rosa Parking Garage 9, located at the intersection of 2nd and D Streets in downtown Santa Rosa (Site; Figure 1). This investigation was conducted on behalf of the City of Santa Rosa (the City) in response to a letter to the City dated December 27, 2004, from the Regional Water Quality Control Board (RWQCB). In this letter, the RWQCB requested that the City implement Monitoring & Reporting Program No. R1-2004-0019 to assess and monitor the extent of petroleum hydrocarbons associated with four underground storage tanks that were abandoned in place at the site.

QUARTERLY MONITORING

On March 23, 2006, MACTEC performed groundwater monitoring, purging, and sampling of six onsite groundwater monitoring wells (MW-1 through MW-6). Prior to sampling, depth to water (DTW) measurements were collected from the monitoring wells using a calibrated electronic sounder. DTW measurements were utilized to calculate the groundwater elevation relative to mean sea level and to determine the groundwater flow direction and gradient.

All groundwater monitoring wells were purged of a minimum of three well volumes using a clean PVC bailer. Conductivity, pH, temperature, and turbidity were measured at regular intervals and recorded on the attached well sampling forms (Appendix A). Groundwater samples were collected from monitoring wells MW-1 through MW-6 after purging, using a stainless steel bailer for each well and decanting

groundwater into clean sample containers provided by the laboratory. All samples were stored on ice and transported under chain of custody control to a California State Certified laboratory for analysis.

Prior to use, all well purging equipment was steam cleaned and rinsed with deionized water at the MACTEC equipment yard. Well purge water was temporarily stored onsite in 55-gallon drums pending receipt of analytical results.

Laboratory Analysis

Groundwater samples were analyzed for the following compounds:

- Total petroleum hydrocarbons (TPH) as gasoline (g) using EPA Method 8015M;
- TPH as diesel (d) using EPA Method 8015M with silica gel strip (EPA Method 3630C); and
- Benzene, toluene, ethyl-benzene, total xylenes (BTEX), 1,2-dichloroethane (1,2-DCA), and ethyl-dibromide (EDB) by EPA Method 8260B.

All samples were analyzed at Sequoia Analytical Laboratory (Sequoia), Morgan Hill, California. Sequoia is a hazardous materials testing laboratory certified by the California Department of Health Services for the analyses requested through the Environmental Laboratory Accreditation Program (ELAP).

RESULTS

Groundwater Flow

For the first quarter 2006, DTW measurements ranged from 9.95 to 13.02 feet below ground surface (bgs) and the groundwater direction at the Site was generally to the southwest at an approximate gradient of 0.005 foot per foot. Table 1 presents groundwater elevations from March 23, 2006, and Figure 2 presents a groundwater contour map.

Laboratory Results

The laboratory analytical reports for groundwater samples submitted for chemical analysis are presented in Appendix B. Table 1 summarizes the analytical results for the groundwater samples collected during this and previous sampling events. Figure 3 presents results for this current quarter. The detected results were as follows:

- TPHg was detected at concentrations of 3,200, 7,600, 79,000, and 640 micrograms per liter (µg/L) in samples collected from Wells MW-1, MW-3, MW-4, and MW-6, respectively. A duplicate groundwater sample was also collected from MW-1 and TPHg was reported at 3,900 µg/L.

- TPHd was detected in all the wells at concentrations between 53 and 10,000 µg/L. A duplicate groundwater sample was also collected from MW-1 and results were reported at 2,300 µg/L.

- Benzene was detected at concentrations of 1.1, 110, 6,000 and 1.1 µg/L in samples collected from Wells MW-1, MW-3, MW-4, and MW-6 respectively. Benzene was not detected in the duplicate sample taken from MW-1; however, the reporting limit for the duplicate sample was elevated (2.5 µg/L).

- Toluene was detected at concentrations of 1.1 and 4,300 µg/L in samples collected from Wells MW-1 and MW-4, respectively. Toluene was not detected in the duplicate sample taken from MW-1; however, the reporting limit for the duplicate sample was elevated (2.5 µg/L).

- Ethylbenzene was detected at concentrations of 83, 250, 5,300, and 0.63 µg/L in samples collected from Wells MW-1, MW-3, MW-4, and MW-6, respectively. Ethylbenzene in the duplicate sample from MW-1 was reported at 94 µg/L.

- Total xylenes were detected at concentrations of 58, 36, and 23,000 µg/L in samples collected from MW-1, MW-3, and MW-4 respectively. Total xylenes in the duplicate sample from MW-1 were reported at 63 µg/L.

- 1,2-DCA and EDB were not detected above laboratory reporting limits in collected samples.

DISCUSSION

Groundwater results from the first quarter 2006 monitoring event are generally consistent with previous sampling events. The highest detected hydrocarbon concentrations were reported for the groundwater sample collected from MW-4.

LIMITATIONS

This document was prepared by MACTEC at the direction of the City for the sole use of the City and the California Regional Water Quality Control Board, the only intended beneficiaries of this work. No other party should rely on the information contained herein without the prior written consent of MACTEC.

We trust this report provides the information required at this time. Please feel free to contact Gary Lieberman at (707) 793-3858 if you have questions.

Yours very truly,

MACTEC Engineering & Consulting, Inc.

Gary A. Lieberman
Senior Geologist

Susan K. Panttaja, P.G.
Senior Geologist

GAL/SKP/mlb:MB61709_1Q-06.DOC-Santa Rosa

Attachments: Table 1 – Groundwater Elevation and Analytical Data

Figure 1 – Area Map with Site Location
Figure 2 – Groundwater Contours and Flow Direction – March 23, 2006
Figure 3 – Groundwater Analytical Results – March 23, 2006

Appendix A – Well Sampling Forms
Appendix B – Laboratory Analytical Report

cc: Richard Nosker, City of Santa Rosa

TABLE

Table 1: Groundwater Elevation and Analytical Data
Parking Garage 9
City of Santa Rosa
Santa Rosa, California

Well Number	Sample Date	TOC (feet relative to msl)	DTW (feet below TOC)	Groundwater Elevation (feet relative to msl)	TPHg (µg/l)	TPHd (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	1,2-DCA (µg/l)	EDB (µg/l)	Napthalene (µg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)
MW-1	05/22/89	164.38	11.79	152.59	58,000	33,000	990	1,500	280	4,700	--	--	--	--	--
	08/23/95	164.38	12.54	151.84	600	600	<0.5	2.6	6.5	21	--	--	--	--	--
	11/02/95	164.38	13.15	151.23	1,200	840	47	11	15	58	--	--	--	--	--
	02/12/96	164.38	8.89	155.49	13,000	2,700	180	470	480	2,500	--	--	--	--	--
	05/09/96	164.38	10.97	153.41	19,000	6,400	96	820	760	4,400	--	--	--	--	--
	05/15/98	164.38	10.52	153.86	24,000	6,100	36	300	670	3,500	--	--	--	--	--
	05/17/99	164.38	11.42	152.96	3,400	378	7.38	30.9	114	524	--	--	--	0.47	-189
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/08/00	164.38	11.10	153.28	3,830	958	<25	28.4	129	616	--	--	51.9	1.14	250
	08/09/00	164.38	12.90	151.48	--	--	--	--	--	--	--	--	--	0.43	-112
	07/26/01	164.38	13.50	150.88	610	300	<0.5	0.8	8.5	20	--	--	--	--	--
	12/22/05	164.38	11.70	152.68	1,800	3,800	<2.5	<2.5	31	22	<2.5	<2.5	--	--	--
	12/22/05	Duplicate Sample			2,800	4,300	<2.5	<2.5	52	34	<2.5	<2.5	--	--	--
	03/23/06	**164.38**	**9.95**	**154.43**	**3,200**	**2,300**	**1.1**	**1.1**	**83**	**58**	**<1.0**	**<1.0**	**--**	**--**	**--**
	03/23/06	**Duplicate Sample**			**3,900**	**2,300**	**<2.5**	**<2.5**	**94**	**63**	**<2.5**	**<2.5**	**--**	**--**	--
MW-2	05/22/89	164.80	11.99	152.81	290	250	<0.5	<0.5	2.1	9,700	--	--	--	--	--
	08/23/95	164.80	12.75	152.05	<50	<50	<0.5	<0.5	0.6	<0.5	--	--	--	--	--
	11/02/95	164.80	13.26	151.54	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	02/12/96	164.80	8.88	155.92	260	160	1.3	<0.5	7.8	7.2	--	--	--	--	--
	05/09/96	164.80	11.24	153.56	110	80	0.7	<0.5	2.7	1.8	--	--	--	--	--
	05/15/98	164.80	10.89	153.91	80	130	<0.5	<0.5	1.1	<1.0	--	--	--	--	--
	05/17/99	164.80	11.72	153.08	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	1.06	293
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	7.42	183
	05/08/00	164.80	12.44	152.36	<50	<50	<1.0	<1.0	<1.0	1.21	--	--	1.57	11.92	182
	08/09/00	164.80	13.84	150.96	--	--	--	--	--	--	--	--	--	6.27	151
	07/26/01	164.80	14.11	150.69	<50	<50	<0.5	<0.5	<0.5	1.2	--	--	--	--	--
	12/22/05	164.80	12.21	152.59	<50	<47	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	--
	03/23/06	**164.80**	**10.45**	**154.35**	**<50**	**130**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**--**	**--**	--
MW-3	05/22/89	164.69	12.15	152.54	49,000	17,000	650	660	1,300	3,500	--	--	--	--	--
	08/23/95	164.69	12.96	151.73	25,000	12,000	660	<0.5	2,400	4,900	--	--	--	--	--
	11/02/95	164.69	13.42	151.27	24,000	3,300	490	190	2,400	4,900	--	--	--	--	--
	02/12/96	164.69	9.14	155.55	32,000	9,900	430	<0.5	2,200	580	--	--	--	--	--
	05/09/96	164.69	11.41	153.28	32,000	8,500	440	110	2,200	4,300	--	--	--	--	--
	05/15/98	164.69	11.11	153.58	24,000	8,200	540	11	1,400	1,800	--	--	--	--	--
	05/17/99	164.69	11.91	152.78	22,400	4,880	716	<0.5	1,220	1,000	--	--		1.84	64
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	2	2
	05/08/00	164.69	12.06	152.63	22,600	4,880	450	<100	1,130	1,413	--	--	604	13.34	130
	08/09/00	164.69	13.62	151.07	--	--	--	--	--	--	--	--	--	0.23	-033
	07/26/01	164.69	14.33	150.36	6,900	2,700	240	3.2	210	110	--	--	--	--	--
	12/22/05	164.69	12.55	152.14	12,000	4,700	93	<5.0	550	200	<5.0	<5.0	--	--	--
	03/23/06	**164.69**	**10.57**	**154.12**	**7,600**	**4,300**	**110**	**<5.0**	**250**	**36**	**<5.0**	**<5.0**	**--**	**--**	--

Table 1: Groundwater Elevation and Analytical Data
Parking Garage 9
City of Santa Rosa
Santa Rosa, California

Well Number	Sample Date	TOC (feet relative to msl)	DTW (feet below TOC)	Groundwater Elevation (feet relative to msl)	TPHg (µg/l)	TPHd (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	1,2-DCA (µg/l)	EDB (µg/l)	Napthalene (µg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)
MW-4	08/22/95	164.68	13.10	151.58	87,000	20,000	6,300	12,000	3,400	18,000	--	--	--	--	--
	11/02/95	164.68	13.75	150.93	79,000	10,000	9,000	18,000	3,400	16,000	--	--	--	--	--
	02/12/96	164.68	9.71	154.97	150,000	9,800	14,000	18,000	4,400	21,000	--	--	--	--	--
	05/09/96	164.68	11.68	153.00	100,000	11,000	13,000	14,000	3,200	13,000	--	--	--	--	--
	05/15/98	164.68	11.53	153.15	170,000	8,900	15,000	17,000	7,100	29,000	--	--	--	--	--
	05/17/99	164.68	12.25	152.43	190,000	10,000	18,000	20,000	8,000	33,000	--	--	--	0.95	38
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	1.65	-22
	05/08/00	164.68	12.21	152.47	95,700	4,360	7,870	12,900	3,540	20,120	--	--	763	0.37	258
	08/09/00	164.68	13.87	150.81	56,700	2,740	5,890	7,630	2,120	13,500	--	--	654	0.11	-090
	07/26/01	164.68	14.37	150.31	490	3,700	3,800	4,400	1,600	9,900	--	--	--	--	--
	12/22/05	164.68	13.17	151.51	66,000	6,600	3,100	2,200	2,900	12,000	<50	<50	--	--	--
	03/23/06	**164.68**	**10.96**	**153.72**	**79,000**	**10,000**	**6,000**	**4,300**	**5,300**	**23,000**	**<50**	**<50**	**--**	**--**	--
MW-5	08/22/95	164.59	13.27	151.32	<50	210	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	11/02/95	164.59	13.83	150.76	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	02/12/96	164.59	10.00	154.59	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	05/09/96	164.59	11.92	152.67	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	05/15/98	164.59	11.55	153.04	<50	170	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--
	05/17/99	164.59	12.34	152.25	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	0.25	187
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	1.63	170
	05/08/00	164.59	12.04	152.55	<50	<50	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	2.47	308
	08/09/00	164.59	13.56	151.03	--	--	--	--	--	--	--	--	--	0.3	139
	07/26/01	164.59	14.13	150.46	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--
	12/22/05	164.59	12.55	152.04	<50	86	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	--
	03/23/06	**164.59**	**11.08**	**153.51**	**<50**	**53**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**--**	**--**	--
MW-6	08/22/95	166.45	15.23	151.22	2,100	820	<0.5	7.2	9.8	9.8	--	--	--	--	--
	11/02/95	166.45	15.88	150.57	710	240	2	<0.5	3.5	5.4	--	--	--	--	--
	02/12/96	166.45	11.94	154.51	320	180	<0.5	0.6	4.4	1	--	--	--	--	--
	05/09/96	166.45	13.83	152.62	200	130	<0.5	<0.5	1	<0.5	--	--	--	--	--
	05/15/98	166.45	13.64	152.81	150	250	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--
	05/17/99	166.45	14.34	152.11	140	113	<0.5	<0.5	<0.5	<0.5	--	--	--	9.67	230
	12/23/99	--	--	--	--	--	--	--	--	--	--	--	--	6.44	132
	05/08/00	166.45	14.03	152.42	<0.05	58	<1.0	<1.0	<1.0	<1.0	--	--	1.32	1.37	306
	08/09/00	166.45	15.65	150.80	--	--	--	--	--	--	--	--	--	0.36	100
	07/26/01	166.45	16.33	150.12	570	290	6.1	<0.5	0.61	<0.5	--	--	--	--	--
	12/22/05	166.45	14.94	151.51	380	100	<0.50	2.8	<0.50	<0.50	<0.50	<0.50	--	--	--
	3/23/2006	**166.45**	**13.02**	**153.43**	**640**	**430**	**1.1**	**<0.50**	**0.63**	**<0.50**	**<0.50**	**<0.50**	**--**	**--**	--

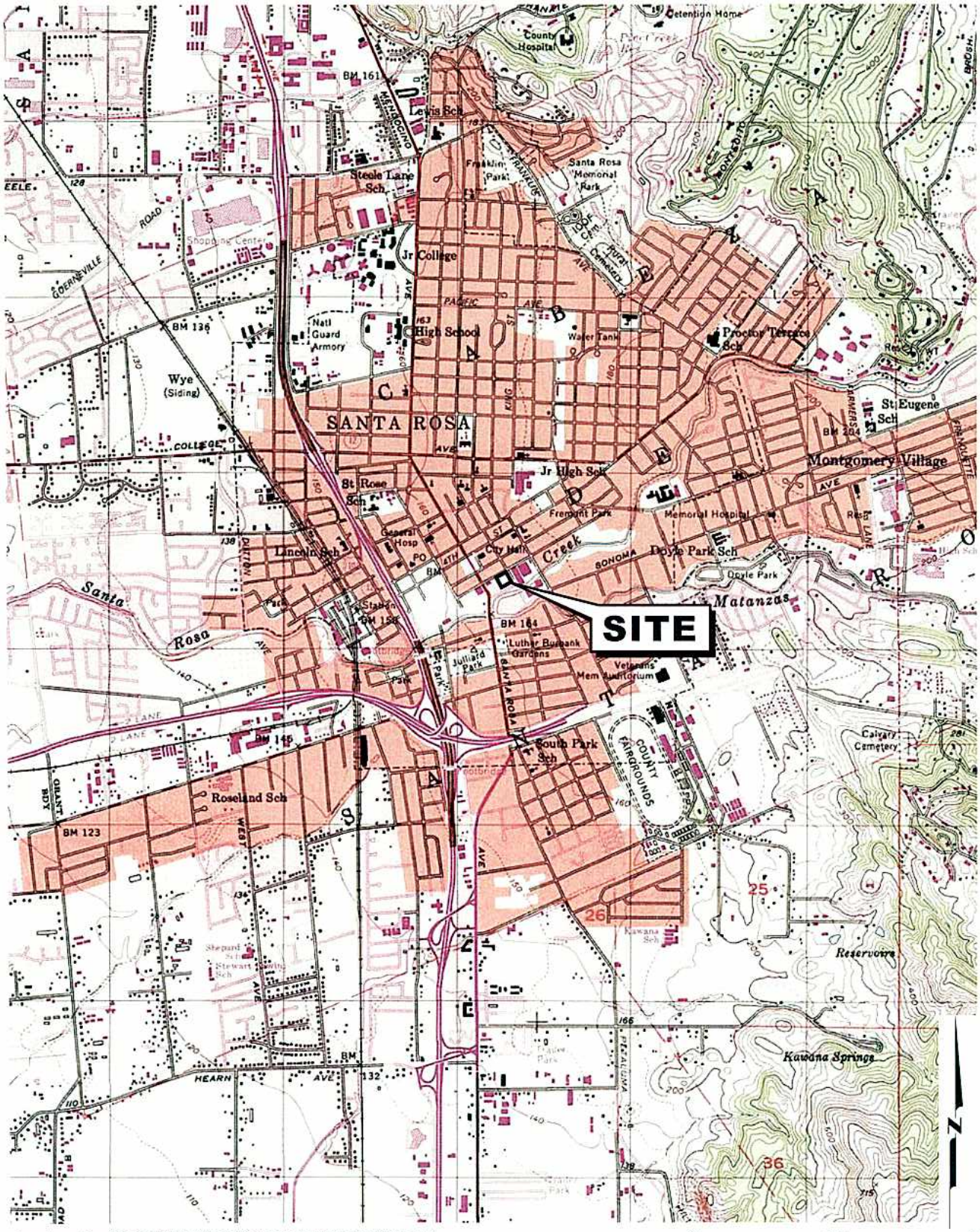
Notes:

TOC = top of casing elevation
DTW = depth to water
msl = mean sea level
TPHg = total petroleum hydrocarbons as gasoline
TPHd = total petroleum hydrocarbons as diesel
1,2-DCA = 1,2-Dichloroethane
EDB = 1,2-Dibromoethane

µg/l = micrograms per liter
< = less than the laboratory reporting limit
mg/l = milligrams per liter
mV = millivolts

Checked SKP
Approved 4/21/06 GAL

FIGURES

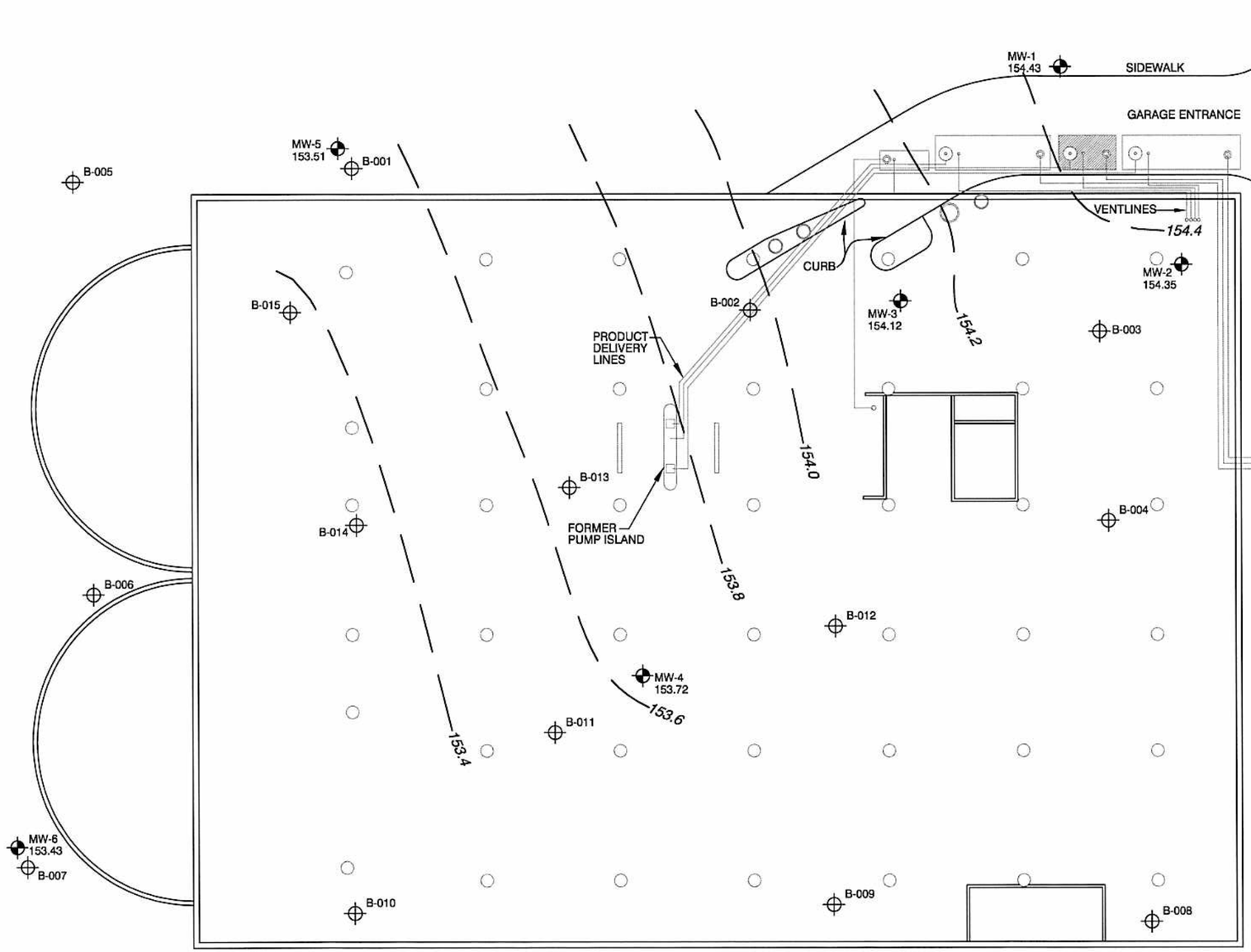


MACTEC

Area Map with Site Location
March 23, 2006
City of Santa Rosa Parking Garage 9
Santa Rosa, California

FIGURE
1

DRAWN	JOB NUMBER	CHECKED	CHECKED DATE	APPROVED	APPROVED DATE
CN	4088053173 02	SWP	1/06	GAL	4/21/06



EXPLANATION

- MW-1 — GROUNDWATER MONITORING WELL
- 154.43 — GROUNDWATER ELEVATION IN FEET MSL
- 154.4 — GROUNDWATER POTENTIOMETRIC CONTOUR FEET MSL
- ORC INJECTION LOCATION
- STRUCTURAL SUPPORT COLUMN
- ABANDONED UNDERGROUND STORAGE TANK

N

0 30 60

SCALE IN FEET

4088053173004.DWG 0.0
20060424.1336

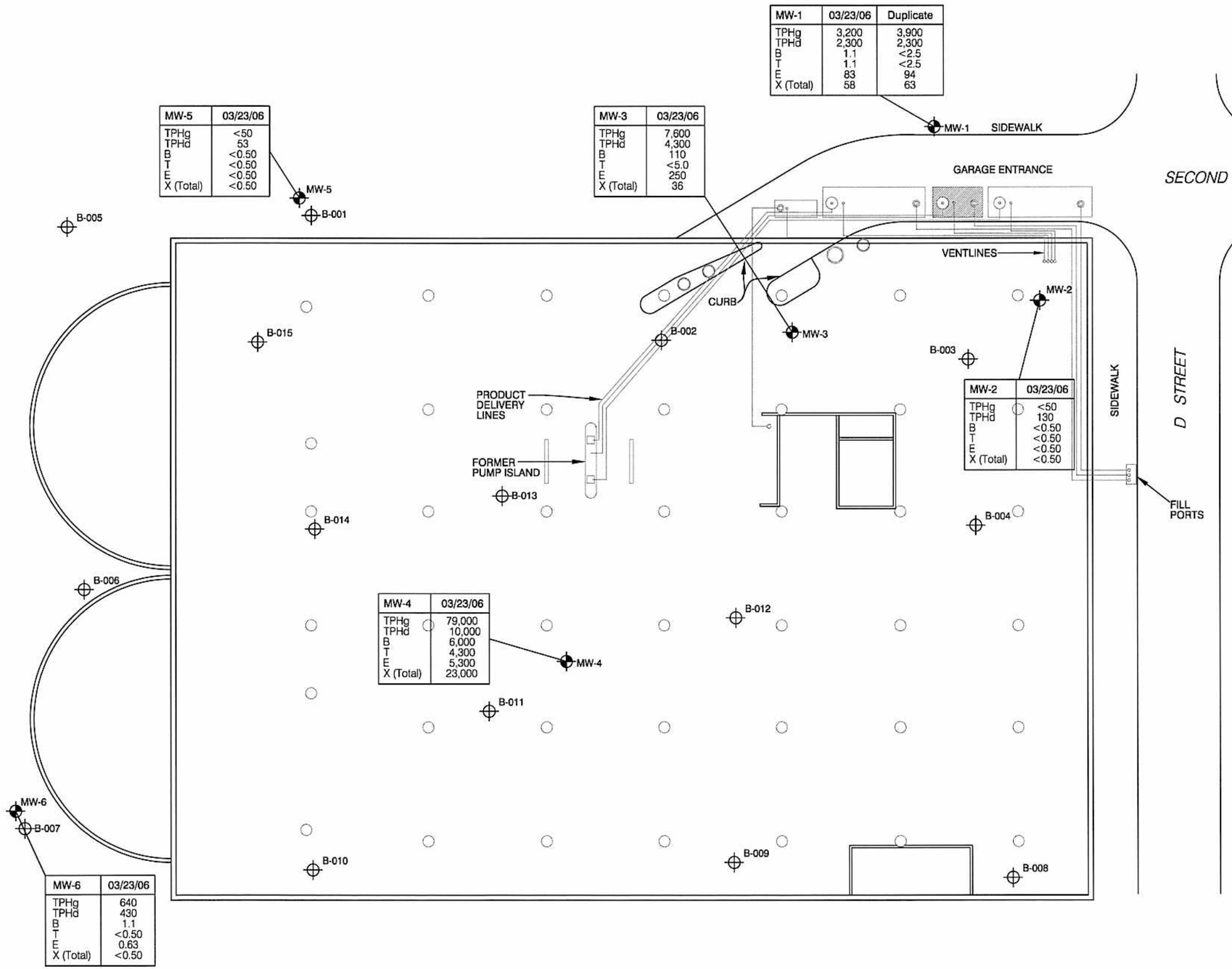
FIGURE

MACTEC

Groundwater Contours and Flow Direction
March 23, 2006
City of Santa Rosa Parking Garage 9
Santa Rosa, California

2

DRAWN	JOB NUMBER	CHECKED	CHK'D DATE	APPROVED	APPRV'D DATE
CN	4088053173 02	SHP	4/24/06	GAL	4/21/06



FIGURE

MACTEC

Groundwater Analytical Results
March 23, 2006
City of Santa Rosa Parking Garage 9
Santa Rosa, California

3

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	4088053173 02	SVP	4/24/06	GAL	4/24/06

APPENDIX A

WELL SAMPLING FORMS

MACTEC

GROUNDWATER SAMPLING FORM

Well Number: MW-4

Well Type: [x] Monitor [ ] Extraction [ ] Other ___
[x] PVC [ ] St. Steel [ ] Other ___

Job Name: Parking Garage 9

Job Number: 4088053173

Date: 3-23-06

Recorded By: _____ (Signature)

Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: 1500

pH S/N 135627 [x] 4 [x] 7 [ ] 10

EC S/N 9920249 [ ] redline [x] STD 1000

Turb S/N 95100000 9097 [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

Final Time: 1530

pH [x] 4 [x] 7 [ ] 10

EC [ ] redline [x] STD 1000

Turb [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(17.7 - 10.96) X 2 ² X 3 X 0.0408 = 3.25 gals.

TD (feet) WL (Feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 0730 GPM: ___

Purge Stop: 0750 GPM: ___

Elapsed: 20 Volume: 3.25

PURGE METHOD

[X] Bailer - Type: PVC

[ ] Submersible - Type: ___

[ ] Other - Type: ___

Field Parameters

Cal ~~Minutes~~	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	6.30	927	15.9	678
.5	6.31	938	15.9	>1000
1	6.36	946	16.1	>1000
1.5	6.41	954	16.2	>1000
2	6.41	948	16.1	>1000
2.5	6.37	944	16.2	>1000
3.25	6.38	943	16.2	>1000

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other ___

Depth in feet (BTOC): ___

Screen Interval in feet (BTOC): from ___ to ___

Observations During Purging (Well Condition, Turbidity, Color, Odor):
strong odor of product
dark brown / black

Discharge Water Disposal: [ ] Sanitary Sewer

[ ] Storm Sewer [X] Other Tank #

WELL SAMPLING

[x] Bailer - Type: Stainless Steel Sample Time: 3/23/2006 0800

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
PRE-PURGE					
POST-PURGE					
06122301	6 VOAs	BTEX / TPH-Gas	HCL	C&T	
11	2 - 1L Amber	TPH-Diesel	none	C&T	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Duplicate Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Reviewed by: ___

Date: ___

MACTEC

GROUNDWATER SAMPLING FORM

Well Number: MW-3

Well Type: [x] Monitor [ ] Extraction [ ] Other ___ [x] PVC [ ] St. Steel [ ] Other ___

Job Name: Parking Garage 9

Job Number: 4088053173

Recorded By: _____ (Signature)

Date: 3-23-06

Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: 1500

pH S/N 13562 [x] 4 [x] 7 [ ] 10

EC S/N 9960249 [ ] redline [x] STD 1006

Turb S/N 95100000 9097 [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

Final Time: 1530

pH [x] 4 [x] 7 [ ] 10

EC [ ] redline [x] STD 1000

Turb [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(19.6 - 10.57) X 2 ² X 3 X 0.0408 = 4.35 gals.

TD (feet) WL (Feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 0815 GPM: ___

Purge Stop: 0835 GPM: ___

Elapsed: 20 Volume: 4.35

PURGE METHOD

[X] Bailer - Type: PVC

[ ] Submersible - Type: ___

[ ] Other - Type: ___

Field Parameters

Minutes	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	6.94	818	15.0	61.3
1	6.73	837	15.3	29C
1.5	6.67	841	15.9	310
2	6.68	842	15.9	226
2.5	6.70	845	15.9	238
3.5	6.65	839	15.9	389
4.35	6.66	842	15.8	288
		842		

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other ___

Depth in feet (BTOC): ___

Screen Interval in feet (BTOC): from ___ to ___

Observations During Purging (Well Condition, Turbidity, Color, Odor):

light brown

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [X] Other Tank #

WELL SAMPLING

[x] Bailer - Type: Stainless Steel Sample Time: 3/23/2006 0840

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
PRE-PURGE					
POST-PURGE					
060122302	6 VOAs	BTEX / TPH-Gas	HCL	C&T	
↓	2 - 1L Amber	TPH-Diesel	none	C&T	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Duplicate Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Reviewed by: ___

Date: ___

MACTEC

GROUNDWATER SAMPLING FORM

Well Number: MW-2

Well Type: [x] Monitor [ ] Extraction [ ] Other ___ [x] PVC [ ] St. Steel [ ] Other ___

Job Name: Parking Garage 9

Job Number: 4088053173

Date: 3-23-06

Recorded By: (Signature)

Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: 1500

pH S/N 13562 [x] 4 [x] 7 [ ] 10

EC S/N 9960249 [ ] redline [x] STD 1000

Turb S/N 95100000 9097 [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

Final Time: 1530

pH [x] 4 [x] 7 [ ] 10

EC [ ] redline [x] STD 1000

Turb [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(19.8 - 10.45) X 2 ² X 3 X 0.0408 = 4.5 gals.

TD (feet) WL (Feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 0700 GPM:

Purge Stop: 0925 GPM:

Elapsed: 25 Volume: 4.5

PURGE METHOD

[X] Bailer - Type: PVC

[ ] Submersible - Type:

[ ] Other - Type:

Field Parameters

~~Gal~~ Minutes	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	6.75	532	15.8	69.1
.75	6.78	523	16.4	322
1.5	6.80	502	16.5	656
2.25	6.79	504	16.5	823
3	6.80	508	16.4	>1000
3.75	6.81	512	16.5	>1000
4.5	6.80	517	16.6	>1000

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other

Depth in feet (BTOC):

Screen Interval in feet (BTOC): from ___ to ___

Observations During Purging (Well Condition, Turbidity, Color, Odor):

light to dark brown

Discharge Water Disposal: [ ] Sanitary Sewer

[ ] Storm Sewer [X] Other Tank #

WELL SAMPLING

[x] Bailer - Type: Stainless Steel Sample Time: 3/23/2006 0930

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
PRE-PURGE					
POST-PURGE					
06122303	6 VOAs	BTEX / TPH-Gas	HCL	C&T	
↓	2 - 1L Amber	TPH-Diesel	none	C&T	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

Reviewed by: ___

Date: ___

MACTEC

GROUNDWATER SAMPLING FORM

Well Number: MW-6

Well Type: [x] Monitor [ ] Extraction [ ] Other ___ [x] PVC [ ] St. Steel [ ] Other ___

Job Name: Parking Garage 9

Job Number: 4088053173

Date: 3-23-06

Recorded By: [signature] (Signature)

Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: 1500

pH S/N 13562 [x] 4 [x] 7 [ ] 10

EC S/N 9960249 [ ] redline [x] STD 1000

Turb S/N 95100000 9097 [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

Final Time: 1530

pH [x] 4 [x] 7 [ ] 10

EC [ ] redline [x] STD 1000

Turb [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(23.3 - 13.08) x 2 ² x 3 x 0.0408 = 5 gals.

TD (feet) WL (Feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 0955 GPM: ___

Purge Stop: 1015 GPM: ___

Elapsed: 20 Volume: 5

PURGE METHOD

[X] Bailer - Type: PVC

[ ] Submersible - Type: ___

[ ] Other - Type: ___

Field Parameters

Minutes	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	6.58	720	17.6	464
1	6.62	728	17.1	501
2	6.75	734	16.6	523
3	6.74	722	16.6	833
4	6.73	723	16.7	925
4.5	6.72	723	16.7	>1000
5	6.73	722	16.7	>1000

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other ___

Depth in feet (BTOC): ___

Screen Interval in feet (BTOC): from ___ to ___

Observations During Purging (Well Condition, Turbidity, Color, Odor):

light to dark brown

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [X] Other Tank #

WELL SAMPLING

[x] Bailer - Type: Stainless Steel Sample Time: 3/23/2006 1020

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
PRE-PURGE					
POST-PURGE					
060223O4	6 VOAs	BTEX / TPH-Gas	HCL	C&T	
↓	2 - 1L Amber	TPH-Diesel	none	C&T	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Duplicate Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Reviewed by: ___

Dated: ___

MACTEC

GROUNDWATER SAMPLING FORM

Well Number: MW-5

Well Type: [x] Monitor [ ] Extraction [ ] Other ___ [x] PVC [ ] St. Steel [ ] Other ___

Job Name: Parking Garage 9

Job Number: 4088053173

Recorded By: _____ (Signature)

Date: 3-23-06

Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: 1500

pH S/N 135762 [x] 4 [x] 7 [ ] 10

EC S/N 9960249 [ ] redline [x] STD 1000

Turb S/N 95100006 [x] 0 - 10 [x] 10 - 1,000 [x] 100 - 1,000
9097

Final Time: 1530

pH [x] 4 [x] 7 [ ] 10

EC [ ] redline [x] STD 1000

Turb [x] 0 - 10 [x] 10 - 1,000 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(19.55 - 11.08) X 2 ² X 3 X 0.0408 = 4.1 gals.

TD (feet) WL (Feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 1030 GPM: ___

Purge Stop: 1045 GPM: ___

Elapsed: 15 Volume: 4.1

PURGE METHOD

[X] Bailer - Type: PVC

[ ] Submersible - Type: ___

[ ] Other - Type: ___

Field Parameters

Minutes	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	7.12	~~388.7~~	17.5	105
1	7.08	~~453.7~~ 453.6	17.4	256
1.5	7.03	441.5	17.4	683
2	7.02	448.6	17.3	>1000
2.5	6.97	458.3	17.2	>1000
3	6.95	461.1	17.2	>1000
4.1	6.84	465.2	17.2	>1000

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other ___

Depth in feet (BTOC): ___

Screen Interval in feet (BTOC): from ___ to ___

Observations During Purging (Well Condition, Turbidity, Color, Odor):

clear to dark brown

Discharge Water Disposal: [ ] Sanitary Sewer

[ ] Storm Sewer [X] Other Tank #

WELL SAMPLING

[x] Bailer - Type: Stainless Steel Sample Time: 3/23/2006 1050

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
PRE-PURGE					
POST-PURGE					
06122305	6 VOAs	BTEX / TPH-Gas	HCL	C&T	
↓	2 - 1L Amber	TPH-Diesel	none	C&T	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

Reviewed by: ___

Date: ___

MACTEC

GROUNDWATER SAMPLING FORM

Well Number: MW-1

Well Type: [x] Monitor [ ] Extraction [ ] Other ___ [x] PVC [ ] St. Steel [ ] Other ___

Job Name: Parking Garage 9

Job Number: 4088053173

Date: 3-23-06

Recorded By: _____ (Signature)

Sampled By: JHD (initials)

WELL PURGING

METER CALIBRATION

Initial Time: 1500

pH S/N 13562 [x] 4 [x] 7 [ ] 10

EC S/N 9920249 [ ] redline [x] STD 1000

Turb S/N 95100000 9097 [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

Final Time: 1536

pH [x] 4 [x] 7 [ ] 10

EC [ ] redline [x] STD 1000

Turb [x] 0 - 10 [x] 10 - 100 [x] 100 - 1,000

PURGE VOLUME CALCULATION

(17.2 - 9.95) X 2 ² X 3 X 0.0408 = 3.5 gals.

TD (feet) WL (Feet) D (inches) # Vols Calculated Purge Volume

Purge Start: 1055 GPM: ___

Purge Stop: 1115 GPM: ___

Elapsed: 20 Volume: 3.5

PURGE METHOD

[x] Bailer - Type: PVC

[ ] Submersible - Type: _____

[ ] Other - Type: _____

Field Parameters

~~Gal~~ Minutes	pH	Conductivity	Temp. [x] °C [ ] °F	Turbidity (NTU)
Initial	7.11	356.3	15.9	556
.5	6.93	372.4	16.1	>1000
1	6.85	380.1	16.1	>1000
1.5	6.84	383.1	16.3	>1000
2	6.86	383.6	16.4	>1000
3	6.87	384.5	16.4	>1000
3.5	6.98	384.7	16.4	>1000

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other _____

Depth in feet (BTOC): _____

Screen Interval in feet (BTOC): from _____ to ___

Observations During Purging (Well Condition, Turbidity, Color, Odor):

strong odor of product
visible sheen on top of water

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [X] Other Tank #

WELL SAMPLING

[x] Bailer - Type: Stainless Steel Sample Time: 3/23/2006 1120

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
PRE-PURGE					
POST-PURGE					
06122306	6 VOAs	BTEX / TPH-Gas	HCL	C&T	
↓	2 - 1L Amber	TPH-Diesel	none	C&T	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.
06122306	06122307

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

Reviewed by: _____

Date: _____

APPENDIX B

LABORATORY ANALYTICAL REPORT

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

10 April, 2006

Gary Lieberman
MACTEC Engineering & Consulting [Petaluma]
5341 Old Redwood Highway, Suite 300
Petaluma, CA 94954

RE: Parking Garage 9 Santa Rosa
Work Order: MPC0855

Enclosed are the results of analyses for samples received by the laboratory on 03/24/06 19:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Race
Senior Project Manager

CA ELAP Certificate #1210

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
06122301	MPC0855-01	Water	03/23/06 08:00	03/24/06 19:20
06122302	MPC0855-02	Water	03/23/06 08:40	03/24/06 19:20
06122303	MPC0855-03	Water	03/23/06 09:30	03/24/06 19:20
06122304	MPC0855-04	Water	03/23/06 10:20	03/24/06 19:20
06122305	MPC0855-05	Water	03/23/06 10:50	03/24/06 19:20
06122306	MPC0855-06	Water	03/23/06 11:20	03/24/06 19:20
06122307	MPC0855-07	Water	03/23/06 11:20	03/24/06 19:20

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

Extractable Hydrocarbons with Silica Gel cleanup by EPA 8015B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
06122301 (MPC0855-01) Water	**Sampled: 03/23/06 08:00**	**Received: 03/24/06 19:20**							
Diesel Range Organics (C10-C28)	**10000**	940	ug/l	20	6C29044	03/29/06	04/06/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*394 %*	*30-115*		"	"	"	"	*S04*
06122302 (MPC0855-02) Water	**Sampled: 03/23/06 08:40**	**Received: 03/24/06 19:20**							
Diesel Range Organics (C10-C28)	**4300**	960	ug/l	20	6C29044	03/29/06	04/06/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*96 %*	*30-115*		"	"	"	"	
06122303 (MPC0855-03) Water	**Sampled: 03/23/06 09:30**	**Received: 03/24/06 19:20**							
Diesel Range Organics (C10-C28)	**130**	47	ug/l	1	6C29044	03/29/06	04/06/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*84 %*	*30-115*		"	"	"	"	
06122304 (MPC0855-04) Water	**Sampled: 03/23/06 10:20**	**Received: 03/24/06 19:20**							
Diesel Range Organics (C10-C28)	**430**	47	ug/l	1	6C30036	03/30/06	04/06/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*72 %*	*30-115*		"	"	"	"	
06122305 (MPC0855-05) Water	**Sampled: 03/23/06 10:50**	**Received: 03/24/06 19:20**							
Diesel Range Organics (C10-C28)	**53**	47	ug/l	1	6C30036	03/30/06	04/06/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*56 %*	*30-115*		"	"	"	"	
06122306 (MPC0855-06) Water	**Sampled: 03/23/06 11:20**	**Received: 03/24/06 19:20**							
Diesel Range Organics (C10-C28)	**2300**	470	ug/l	10	6C30036	03/30/06	04/06/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*91 %*	*30-115*		"	"	"	"	
06122307 (MPC0855-07) Water	**Sampled: 03/23/06 11:20**	**Received: 03/24/06 19:20**							
Diesel Range Organics (C10-C28)	**2300**	470	ug/l	10	6C30036	03/30/06	04/06/06	EPA 8015B-SVOA	HC-12
Surrogate: n-Octacosane		*78 %*	*30-115*		"	"	"	"	

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
06122301 (MPC0855-01) Water Sampled: 03/23/06 08:00 Received: 03/24/06 19:20									
Gasoline Range Organics (C4-C12)	**79000**	5000	ug/l	100	6D05022	04/05/06	04/06/06	EPA 8260B	
Benzene	**6000**	50	"	"	"	"	"	"	
Toluene	**4300**	50	"	"	"	"	"	"	
Ethylbenzene	**5300**	50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*94 %*	*80-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*88 %*	*60-115*		"	"	"	"	
Surrogate: Dibromofluoromethane		*95 %*	*85-130*		"	"	"	"	
Surrogate: Toluene-d8		*97 %*	*70-130*		"	"	"	"	
06122301 (MPC0855-01RE1) Water Sampled: 03/23/06 08:00 Received: 03/24/06 19:20									
Xylenes (total)	**23000**	250	ug/l	500	6D06008	04/06/06	04/06/06	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		*97 %*	*80-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*89 %*	*60-115*		"	"	"	"	
Surrogate: Dibromofluoromethane		*102 %*	*85-130*		"	"	"	"	
Surrogate: Toluene-d8		*95 %*	*70-130*		"	"	"	"	
06122302 (MPC0855-02) Water Sampled: 03/23/06 08:40 Received: 03/24/06 19:20									
Gasoline Range Organics (C4-C12)	**7600**	500	ug/l	10	6D05022	04/05/06	04/06/06	EPA 8260B	
Benzene	**110**	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	**250**	5.0	"	"	"	"	"	"	
Xylenes (total)	**36**	5.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*98 %*	*80-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*91 %*	*60-115*		"	"	"	"	
Surrogate: Dibromofluoromethane		*98 %*	*85-130*		"	"	"	"	
Surrogate: Toluene-d8		*102 %*	*70-130*		"	"	"	"	

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
06122303 (MPC0855-03) Water Sampled: 03/23/06 09:30 Received: 03/24/06 19:20									
Gasoline Range Organics (C4-C12)	ND	50	ug/l	1	6D05022	04/05/06	04/06/06	EPA 8260B	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*94 %*	*80-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*91 %*	*60-115*		"	"	"	"	
Surrogate: Dibromofluoromethane		*103 %*	*85-130*		"	"	"	"	
Surrogate: Toluene-d8		*102 %*	*70-130*		"	"	"	"	
06122304 (MPC0855-04) Water Sampled: 03/23/06 10:20 Received: 03/24/06 19:20									
Gasoline Range Organics (C4-C12)	**640**	50	ug/l	1	6D05022	04/05/06	04/06/06	EPA 8260B	
Benzene	**1.1**	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	**0.63**	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*114 %*	*80-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*91 %*	*60-115*		"	"	"	"	
Surrogate: Dibromofluoromethane		*98 %*	*85-130*		"	"	"	"	
Surrogate: Toluene-d8		*102 %*	*70-130*		"	"	"	"	

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
06122305 (MPC0855-05) Water Sampled: 03/23/06 10:50 Received: 03/24/06 19:20									
Gasoline Range Organics (C4-C12)	ND	50	ug/l	1	6D05022	04/05/06	04/06/06	EPA 8260B	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*90 %*		*80-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*90 %*		*60-115*	"	"	"	"	
Surrogate: Dibromofluoromethane		*100 %*		*85-130*	"	"	"	"	
Surrogate: Toluene-d8		*103 %*		*70-130*	"	"	"	"	
06122306 (MPC0855-06) Water Sampled: 03/23/06 11:20 Received: 03/24/06 19:20									
Gasoline Range Organics (C4-C12)	**3200**	100	ug/l	2	6D05022	04/05/06	04/06/06	EPA 8260B	
Benzene	**1.1**	1.0	"	"	"	"	"	"	
Toluene	**1.1**	1.0	"	"	"	"	"	"	
Ethylbenzene	**83**	1.0	"	"	"	"	"	"	
Xylenes (total)	**58**	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	1.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*116 %*		*80-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97 %*		*60-115*	"	"	"	"	
Surrogate: Dibromofluoromethane		*100 %*		*85-130*	"	"	"	"	
Surrogate: Toluene-d8		*101 %*		*70-130*	"	"	"	"	

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
06122307 (MPC0855-07) Water Sampled: 03/23/06 11:20 Received: 03/24/06 19:20									
Gasoline Range Organics (C4-C12)	**3900**	250	ug/l	5	6D05022	04/05/06	04/06/06	EPA 8260B	
Benzene	ND	2.5	"	"	"	"	"	"	
Toluene	ND	2.5	"	"	"	"	"	"	
Ethylbenzene	**94**	2.5	"	"	"	"	"	"	
Xylenes (total)	**63**	2.5	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.5	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	2.5	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*80-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*95 %*	*60-115*		"	"	"	"	
Surrogate: Dibromofluoromethane		*99 %*	*85-130*		"	"	"	"	
Surrogate: Toluene-d8		*101 %*	*70-130*		"	"	"	"	

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

Extractable Hydrocarbons with Silica Gel cleanup by EPA 8015B - Quality Control
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6C29044 - EPA 3510C / EPA 8015B-SVOA										
Blank (6C29044-BLK1)				Prepared: 03/29/06 Analyzed: 04/05/06						
Diesel Range Organics (C10-C28)	ND	50	ug/l							
Surrogate: n-Octacosane	*37.1*		"	*50.0*		*74*	*30-115*			
Laboratory Control Sample (6C29044-BS1)				Prepared: 03/29/06 Analyzed: 04/05/06						
Diesel Range Organics (C10-C28)	336	50	ug/l	500		67	40-140			
Surrogate: n-Octacosane	*42.6*		"	*50.0*		*85*	*30-115*			
Laboratory Control Sample Dup (6C29044-BSD1)				Prepared: 03/29/06 Analyzed: 04/05/06						**QM11**
Diesel Range Organics (C10-C28)	348	50	ug/l	500		70	40-140	4	35	
Surrogate: n-Octacosane	*41.0*		"	*50.0*		*82*	*30-115*			
Batch 6C30036 - EPA 3510C / EPA 8015B-SVOA										
Blank (6C30036-BLK1)				Prepared: 03/30/06 Analyzed: 04/06/06						
Diesel Range Organics (C10-C28)	ND	50	ug/l							
Surrogate: n-Octacosane	*40.2*		"	*50.0*		*80*	*30-115*			
Laboratory Control Sample (6C30036-BS1)				Prepared: 03/30/06 Analyzed: 04/06/06						
Diesel Range Organics (C10-C28)	339	50	ug/l	500		68	40-140			
Surrogate: n-Octacosane	*40.2*		"	*50.0*		*80*	*30-115*			
Laboratory Control Sample Dup (6C30036-BSD1)				Prepared: 03/30/06 Analyzed: 04/06/06						**QM11**
Diesel Range Organics (C10-C28)	347	50	ug/l	500		69	40-140	2	35	
Surrogate: n-Octacosane	*39.1*		"	*50.0*		*78*	*30-115*			

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6D05022 - EPA 5030B P/T / EPA 8260B										
Blank (6D05022-BLK1)				Prepared & Analyzed: 04/05/06						
Gasoline Range Organics (C4-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*4.66*		"	*5.00*		*93*	*80-135*			
Surrogate: 4-Bromofluorobenzene	*4.33*		"	*5.00*		*87*	*60-115*			
Surrogate: Dibromofluoromethane	*5.07*		"	*5.00*		*101*	*85-130*			
Surrogate: Toluene-d8	*5.08*		"	*5.00*		*102*	*70-130*			
Laboratory Control Sample (6D05022-BS1)				Prepared & Analyzed: 04/05/06						
Gasoline Range Organics (C4-C12)	417	50	ug/l	440		95	75-140			
Benzene	5.78	0.50	"	5.04		115	70-125			
Toluene	35.0	0.50	"	38.0		92	70-120			
Ethylbenzene	7.29	0.50	"	7.28		100	80-130			
Xylenes (total)	41.8	0.50	"	40.8		102	85-125			
1,2-Dichloroethane	15.5	0.50	"	15.5		100	75-125			
1,2-Dibromoethane (EDB)	15.7	0.50	"	16.6		95	85-125			
Surrogate: 1,2-Dichloroethane-d4	*4.64*		"	*5.00*		*93*	*80-135*			
Surrogate: 4-Bromofluorobenzene	*4.60*		"	*5.00*		*92*	*60-115*			
Surrogate: Dibromofluoromethane	*4.72*		"	*5.00*		*94*	*85-130*			
Surrogate: Toluene-d8	*4.99*		"	*5.00*		*100*	*70-130*			
Matrix Spike (6D05022-MS1)	**Source: MPC0855-01**			Prepared: 04/05/06 Analyzed: 04/06/06						
Gasoline Range Organics (C4-C12)	124000	5000	ug/l	44000	79000	102	75-140			
Benzene	6270	50	"	504	6000	54	70-125			QM05
Toluene	8210	50	"	3800	4300	103	70-120			
Ethylbenzene	5800	50	"	728	5300	69	80-130			QM05
Xylenes (total)	6590	50	"	4080	6000	14	85-125			QM02
1,2-Dichloroethane	1530	50	"	1550	ND	99	75-125			
1,2-Dibromoethane (EDB)	1610	50	"	1660	ND	97	85-125			
Surrogate: 1,2-Dichloroethane-d4	*4.58*		"	*5.00*		*92*	*80-135*			
Surrogate: 4-Bromofluorobenzene	*4.61*		"	*5.00*		*92*	*60-115*			
Surrogate: Dibromofluoromethane	*4.73*		"	*5.00*		*95*	*85-130*			

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6D05022 - EPA 5030B P/T / EPA 8260B										
Matrix Spike (6D05022-MS1)	**Source: MPC0855-01**			Prepared: 04/05/06 Analyzed: 04/06/06						
Surrogate: Toluene-d8	*5.00*		*ug/l*	*5.00*		*100*	*70-130*			
Matrix Spike Dup (6D05022-MSD1)	**Source: MPC0855-01**			Prepared: 04/05/06 Analyzed: 04/06/06						
Gasoline Range Organics (C4-C12)	115000	5000	ug/l	44000	79000	82	75-140	8	20	
Benzene	5910	50	"	504	6000	0	70-125	6	15	QM05
Toluene	7410	50	"	3800	4300	82	70-120	10	15	
Ethylbenzene	5650	50	"	728	5300	48	80-130	3	15	QM05
Xylenes (total)	6560	50	"	4080	6000	14	85-125	0.5	15	QM02
1,2-Dichloroethane	1450	50	"	1550	ND	94	75-125	5	10	
1,2-Dibromoethane (EDB)	1530	50	"	1660	ND	92	85-125	5	15	
Surrogate: 1,2-Dichloroethane-d4	*4.39*		*"*	*5.00*		*88*	*80-135*			
Surrogate: 4-Bromofluorobenzene	*4.49*		*"*	*5.00*		*90*	*60-115*			
Surrogate: Dibromofluoromethane	*4.65*		*"*	*5.00*		*93*	*85-130*			
Surrogate: Toluene-d8	*4.88*		*"*	*5.00*		*98*	*70-130*			
Batch 6D06008 - EPA 5030B P/T / EPA 8260B										
Blank (6D06008-BLK1)				Prepared & Analyzed: 04/06/06						
Gasoline Range Organics (C4-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*4.43*		*"*	*5.00*		*89*	*60-135*			
Surrogate: 4-Bromofluorobenzene	*4.69*		*"*	*5.00*		*94*	*70-120*			
Surrogate: Dibromofluoromethane	*4.79*		*"*	*5.00*		*96*	*65-130*			
Surrogate: Toluene-d8	*4.91*		*"*	*5.00*		*98*	*70-120*			

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6D06008 - EPA 5030B P/T / EPA 8260B										
Laboratory Control Sample (6D06008-BS1)				Prepared & Analyzed: 04/06/06						
Gasoline Range Organics (C4-C12)	413	50	ug/l	440		94	60-140			
Benzene	5.60	0.50	"	5.04		111	65-115			
Toluene	34.7	0.50	"	38.0		91	85-120			
Ethylbenzene	7.33	0.50	"	7.28		101	75-135			
Xylenes (total)	42.0	0.50	"	40.8		103	85-125			
1,2-Dichloroethane	15.9	0.50	"	15.5		103	85-130			
1,2-Dibromoethane (EDB)	16.6	0.50	"	16.6		100	85-120			
Surrogate: 1,2-Dichloroethane-d4	*4.38*		"	*5.00*		*88*	*60-135*			
Surrogate: 4-Bromofluorobenzene	*4.55*		"	*5.00*		*91*	*70-120*			
Surrogate: Dibromofluoromethane	*4.60*		"	*5.00*		*92*	*65-130*			
Surrogate: Toluene-d8	*4.79*		"	*5.00*		*96*	*70-120*			
Matrix Spike (6D06008-MS1)	**Source: MPC0965-06**			Prepared & Analyzed: 04/06/06						
Gasoline Range Organics (C4-C12)	2360	250	ug/l	2200	46	105	60-140			
Benzene	29.4	2.5	"	25.2	ND	117	65-115			QM01
Toluene	177	2.5	"	190	ND	93	85-120			
Ethylbenzene	37.0	2.5	"	36.4	ND	102	75-135			
Xylenes (total)	204	2.5	"	204	ND	100	85-125			
1,2-Dichloroethane	82.4	2.5	"	77.6	ND	106	85-130			
1,2-Dibromoethane (EDB)	86.0	2.5	"	83.2	ND	103	85-120			
Surrogate: 1,2-Dichloroethane-d4	*5.04*		"	*5.00*		*101*	*60-135*			
Surrogate: 4-Bromofluorobenzene	*4.48*		"	*5.00*		*90*	*70-120*			
Surrogate: Dibromofluoromethane	*5.06*		"	*5.00*		*101*	*65-130*			
Surrogate: Toluene-d8	*5.12*		"	*5.00*		*102*	*70-120*			
Matrix Spike Dup (6D06008-MSD1)	**Source: MPC0965-06**			Prepared & Analyzed: 04/06/06						
Gasoline Range Organics (C4-C12)	2280	250	ug/l	2200	46	102	60-140	3	25	
Benzene	29.4	2.5	"	25.2	ND	117	65-115	0	20	QM01
Toluene	177	2.5	"	190	ND	93	85-120	0	20	
Ethylbenzene	37.9	2.5	"	36.4	ND	104	75-135	2	15	
Xylenes (total)	215	2.5	"	204	ND	105	85-125	5	20	
1,2-Dichloroethane	81.6	2.5	"	77.6	ND	105	85-130	1	20	
1,2-Dibromoethane (EDB)	83.0	2.5	"	83.2	ND	100	85-120	4	15	
Surrogate: 1,2-Dichloroethane-d4	*4.71*		"	*5.00*		*94*	*60-135*			
Surrogate: 4-Bromofluorobenzene	*4.63*		"	*5.00*		*93*	*70-120*			
Surrogate: Dibromofluoromethane	*4.83*		"	*5.00*		*97*	*65-130*			

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6D06008 - EPA 5030B P/T / EPA 8260B										
Matrix Spike Dup (6D06008-MSD1)	**Source: MPC0965-06**			Prepared & Analyzed: 04/06/06						
Surrogate: Toluene-d8	*4.80*		*ug/l*	*5.00*		*96*	*70-120*			

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

MACTEC Engineering & Consulting [Petaluma]	Project:Parking Garage 9 Santa Rosa	MPC0855
5341 Old Redwood Highway, Suite 300	Project Number:4088053173.01	**Reported:**
Petaluma CA, 94954	Project Manager:Gary Lieberman	04/10/06 14:33

Notes and Definitions

S04	The surrogate recovery for this sample is above control limits due to interference from the sample matrix.
QM11	A matrix spike and/or matrix spike duplicate could not be performed due to insufficient sample amount.
QM05	The spike recovery was below control limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM02	The spike recovery was below control limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM01	The spike recovery was above control limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
HC-12	Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

MACTEC

5341 Old Redwood Highway
Suite 300
Petaluma, CA 94954
(707) 793-3800

CHAIN OF CUSTODY . ,RM

Seq. No.: № 2390

Samplers: Justin Hanzel-Durbin

Lab: ~~CAS~~ Sequoia

Job Number: 408805317 3.01

Name/Location: Parking Garage 9, Santa Rosa

Project Manager: Gary Lieberman

Recorder: (Signature Required)

MATRIX				# CONTAINERS & PRESERV.				SAMPLE NUMBER		DATE				ANALYSIS REQUESTED		
Water	Soil	Air		Unpres.	H2SO4	HNO3	HCL	YR	SEQ	YR	MO	DAY	TIME	TPH gas	BTEX	TPH Diesel
X				2			6	06	122301	06	03	23	0800	X	X	X
X				2			6	06	122302	06	03	23	0840	X	X	X
X				2			6	06	122303	06	03	23	0930	X	X	X
X				2			6	06	122304	06	03	23	1020	X	X	X
X				2			6	06	122305	06	03	23	1050	X	X	X
X				2			6	06	122306	06	03	23	1120	X	X	X
X				2			6	06	122307	06	03	23	1120	X	X	X

MPC0855

STATION DESCRIPTION

	DEPTH
-01	
-02	
-03	
-04	
-05	
-06	
-07	

ADDITIONAL INFORMATION

SAMPLE NUMBER

YR SEQ

TURNAROUND TIME/ REMARKS

Standard TAT

TPH Diesel: include silica gel strip (EPA 3630c)

BTEX: include (1,2 DCA) and (EDB) 8260

We also need EDF for Geotracker

CHAIN OF CUSTODY RECORD 3/23/06

Relinquished By (Signature)	Justin Hanzel-Durbin (Print Name)	MACTEC (Company)	1240 Date/Time
Received By (Signature)	(Print Name)	(Company)	Date/Time
Relinquished By (Signature)	Alfredo Lorenzo (Print Name)	Sequoia (Company)	3-24-06 1140 Date/Time
Received By (Signature)	Tomas Martinez (Print Name)	Sequoia (Company)	3/24/06 13 Date/Time
Relinquished By (Signature)	Tomas Martinez (Print Name)	Sequoia (Company)	3/24/06 Date/Time
Received By (Signature)	(Print Name)	(Company)	Date/Time

CUSTODY SEALS INTACT NOT INTACT

Method of Shipment: COOLER TEMP: 4.1 °C

Laboratory Copy Project Office Copy Field or Office Copy

F1008-B (5/04)

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: Mactec
REC. BY (PRINT) [illegible]
WORKORDER: MPC0855

DATE Received at Lab: 3/23/06
TIME Received at Lab: 1240
LOG IN DATE: 3/23/06

(Drinking water) for regulatory purposes: YES/NO
(Wastewater) for regulatory purposes: YES/NO

CIRCLE THE APPROPRIATE RESPONSE	LAB SAMPLE #	Dash #	CLIENT ID	CONTAINER DESCRIPTION	pH	SAMPLE MATRIX	DATE SAMPLED	COMMENTS / CONDITION (ETC.)
			DTG 8h			W		
1. Custody Seal(s) Present / (Absent) Intact / Broken*			06122301	4 PVS + 2x 1LA		W	3/23/06	
			2					
2. Chain-of-Custody (Present) / Absent*			3					
4. Airbill: Airbill / Sticker Present / (Absent)			4					
			5					
5. Airbill #:			6					
6. Sample Labels: (Present) / Absent			7					
7. Sample IDs: (Listed) / Not Listed on Chain-of-Custody								
8. Sample Condition: (Intact) / Broken* / Leaking*								
9. Does information on custody reports, traffic reports, and sample labels agree? (Yes) / No*								
10. Sample received within hold time: (Yes) / No*								
11. Proper Preservatives used: (Yes) / No*								
12. Temperature Blank Received? Yes (No*)								
13. Temp Rec. at Lab: 4.1 degrees C (Acceptance range for samples requiring thermal pres.:4+/-2°C) (Yes) / No*								
14. Samples collected more than 4 days ago? Yes* / (No)								

*If Circled, contact Project Manager and attach record of resolution.

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: MPC0855 Maatec
REC. BY (PRINT): L.P.
WORKORDER:

DATE REC'D AT LAB: 3-24-06
TIME REC'D AT LAB: 19:20
DATE LOGGED IN:

For Regulatory Purposes?
DRINKING WATER YES / NO
WASTE WATER YES / NO

CIRCLE THE APPROPRIATE RESPONSE		LAB SAMPLE #	DASH #	CLIENT ID	CONTAINER DESCRIPTION	PRESERVATIVE	pH	SAMPLE MATRIX	DATE SAMPLED	REMARKS: CONDITION (ETC.)
1. Custody Seal(s)	Present / Absent (circled: Absent); Intact / Broken*									
2. Chain-of-Custody	Present / Absent* (circled: Present)									
3. Traffic Reports or Packing List:	Present / Absent (circled: Absent)									
4. Airbill:	Airbill / Sticker; Present / Absent (circled: Absent)									
5. Airbill #: —										
6. Sample Labels:	Present / Absent (circled: Present)									
7. Sample IDs:	Listed / Not Listed on Chain-of-Custody (circled: Listed)									
8. Sample Condition:	Intact / Broken* / Leaking* (circled: Intact)									
9. **Does information on chain-of-custody, traffic reports and sample labels agree?**	Yes / No* (circled: Yes)									
10. Sample received within hold time?	Yes / No* (circled: Yes)									
11. Adequate sample volume received?	Yes / No* (circled: Yes)									
12. Proper preservatives used?	Yes / No* (circled: Yes)									
13. Trip Blank / Temp Blank Received? (circle which, if yes)	Yes / No (circled: No)									
14. Read Temp: 4.3C; Corrected Temp: 4.3C; Is corrected temp 4 +/-2°C?	Yes / No** (circled: Yes)									
(Acceptance range for samples requiring thermal pres.) **Exception (if any): METALS / DFF ON ICE or Problem COC										

(Grid struck through diagonally; annotated "LP 3-24-06")

*IF CIRCLED, CONTACT PROJECT MANAGER AND ATTACH RECORD OF RESOLUTION.